IMPACT OF INTERNAL FINANCE ON FIRM GROWTH: A CASE STUDY ON SOUTH AFRICAN SMES

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DECLARATION

I, the undersigned, _____ *(full names, please print)*, hereby declare that this research is my own, unaided work. It is being submitted in partial fulfilment of the requirements for the degree of Honours in Business Science at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

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ABSTRACT

It is known that entrepreneurship has great advantages on the economy as a whole. In South Africa, SMEs constitute majority of business in the formal sector. Yet, many firms struggle and some diminish because of finance. Many do not have access to external finance as such this study proposed internal finance to be an avenue that can be explored. This paper argues that access to internal finance leads to firm growth. Thus the following research question is proposed:

> To what extent does internal finance impact the growth of SME in South Africa and how?

A second question is proposed as there are different types of internal finance:

> What component of internal finance is available for South African SMEs and to what extent does it affect their growth?

Moreover, the other factors of firm growth and, further, their impact on internal finance were focused in order to fully understand the relationship between internal finance and firm growth. The study employed a sample of SMEs registered on the AltX section of the JSE. A panel data set was used in combination with Fixed Effects Method and Random Effects Model to run simple and multiple linear regression analysis to obtain results. A significant but ambiguous relationship between internal finance and firm growth was found. The study further recognized a negative relationship between internal finance and the two types of internal finance: retained earnings and fixed assets. In addition, the study established equity, debt, and taxes to have a significant impact on firm growth and internal finance. These three factors are proposed to be the underlying factors of both firm growth and internal finance.

Though performed on listed SMEs; these findings would allow policy makers to design policies that truly promote SME growth.

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CHAPTER 1: INTRODUCTION

1.1. Background

1.1.1. Importance of Entrepreneurship in South Africa

South Africa is filled with an array of socio-economic problems, unemployment is one of them. Currently at 26.7%[1] (www.statssa.gov.za), the unemployment rate is one of the highest in the world (Kingdon and Knight, 2004). 70% of the unemployed are the youth (Steenekamp, Merwe and Athayde, 2011) with many of them susceptible to long term unemployment (Kingdon and Knight, 2004). Fatoki and Odeyemi (2010) noted that one of the ways to alleviate or reduce unemployment is to leverage the potential job creation of small businesses and promote their growth. Regional employment is affected by entrepreneurship as it creates vital long-term employment spill-overs. As a result it is seen as the answer (Luiz and Mariotti, 2011). Entrepreneurship, furthermore, allows them to break the cycle of unemployment and venture into a pathway of a more sustainable long term financial stability.

Some new ventures grow while others deteriorate and vanish. However their contribution to the economy and society as a whole is unignorable. New firms contribute to economic growth through job creation, innovation, entrepreneurial behaviour and competitiveness (Markova and Petkovska-Mircevska, 2010). Schumpeter (1929) was one of the first economists to state the importance of new venture creation to the economy. The "Schumpeterian dynamics' analysis of the forces of change" was used in an effort to describe how the entrepreneur can adapt to change and therefore learn from dealing with uncertainty and dynamic forces (Deakins and Freel, 1998). Thus further contribute to new products,

[1]for the third quarter of 2015

technologies and ventures. New firms are an important source of innovation and bring competitive pressure (Olawale and Garwe, 2010). They are seen as the engine of a machine that induces innovation and job creation. These are the two areas where small firms have outdistanced their larger counterparts (Petty and Bygrave, 1993).

1.1.2. Small to Medium Enterprises (SMEs) in South Africa

Table 1.1: SME Definition in South Africa

Type of firm	Employees	Turnover	Balance sheet
Small	1-49	Maximum R13m	Maximum R5m
Medium	51-200	Maximum R51m	Maximum R19m

Source: Olawale and Garwe (2010)

Entrepreneurship is simply the creation of new businesses which includes SMEs. SME is defined differently across countries and industries (http://ncr.org.za). Table 1.1 above gives a basic South African definition of SMEs. Venter and de Clercq (2007) noted that the SME sector was identified as an important sector for creating wealth and jobs in South Africa. In order for the SME sector to be sustained, new SMEs need to be generated (Olawale and Garwe, 2010). An estimation of 91% of the formal business entities are SMEs which result in 61% of employment created and contribute towards 52% - 57% of the GDP (Abor and Quartey, 2010). Because of the public and formal sectors' inability to absorb the increasing number of job seekers new venture creation and entrepreneurship have been seen as an alternative. However, South African SMEs have the highest failure rate in the world of 75% and new SMEs do not grow. The prevailing key growth issue is that most firms do not move beyond the existence stage[2], to the other stages (Olawale and Garwe, 2010). Finance is a great inhibitor of growth, next to education and training (Abor and Quartey, 2010).

[2] Churchill and Lewis (1983) identified existence, survival, success, take –off and resource maturity as the 5 stages of small business growth (see table 1.3 in Appendix C for an explanation of each stage.

1.1.3. Finance in South Africa

At the heart of entrepreneurship is financing the venture. Finance is required to start trading and fund growth. It is important as it plays a specific role through the life cycle of the venture (Leach and Melicher, 2012). During the early years, most firms experience major operational and financial problems. Lack of access to finance can be a constraint to firm growth. This is a major problem among South African entrepreneurs (Olawale and Garwe, 2010). Leitch, Hill and Neergarard (2010) stated that most firms that start small stay small. Their financial problems include: access to vital resources such as capital and starting their venture with insufficient initial capital (Chigunta, 2002). SMEs have three options for finance; namely internal, debt and equity finance.

1.1.3.1. Debt finance in South Africa

For many developing countries the commercial bank is the main source of external finance. Thus it is vital for commercial banks to develop sustainable and viable means of providing credit to SMEs (http://ncr.org.za). However; access to banks is one of the major concerns for SMEs in South Africa (Cant and Wild, 2013; Clover and Darroch, 2005; Fatoki and Odeyemi, 2010). Lack of collateral is one of the major limitations to access to banking finance (Murinde, 2006).

1.1.3.2. Equity Finance in South Africa

There is a significant difference between African financial markets and developed financial markets. All African markets are characterised by low capitalisation, low levels of liquidity and low levels of listings with the exception of the JSE[3] (Murinde, 2006). Nonetheless; South African SMEs do not benefit from this type of financing as they have limited access (Abor and Quartey, 2010). The requirements for the JSE stipulate that a 3 year history of profit is required as well other disqualifying requirements; as seen in table 1.2 - Appendix C. There is

[3] Johannesburg Stock Exchange

a dedicated stock exchange for African SMEs called the AltX JSE; however there has not been much documented.

1.2. Aim and Objectives

1.2.1. Aim and Researchable Questions of the Study

The aim of this paper is to explore the potential association between internal finance and South African SME firm growth. According to White, Sondhi, and Fried (2003) growth firms retain most of their earnings for financing future expansion. Therefore the study will attempt to answer the following the question:

> To what extent does internal finance impact the growth of SME in South Africa and how?

However, there are different types of internal finance (Arbuckle, n.d.). As such a second question is proposed:

> What components of internal finance are available for South African SMEs and to what extent does it affect their growth?

1.2.2. Objectives of the Study

In order to answer the above question the following objectives have to be achieved, which are to:

- Explore the relationship between internal finance and firm growth.
- Analyse the relationship between the types of internal finance and firm growth.
- Identifying other sources, if there are, of SMEs growth.
- And lastly investigate the external factors that contribute to the internal finance such as taxes.

Analysing other sources of SME growth other than internal finance allowed further understanding of the relationship. Moreover, the last objective was to allow the understanding of the relationship better as doing so will provide a holistic approach to the relationship. Investigating the above objectives is an attempt to identify the financial challenges SMEs experiences. As such the following are the proposed researchable questions:

- To what extent does internal finance impact the growth of SME in South Africa and how?
- What component of internal finance is available for South African SMEs and to what extent does it affect their growth?
- Are there other sources of firm growth for South African SMEs and to what extent does it affect their growth?
- What are the external factors of internal finance; to what extent does it impact their internal finance?

1.3. Significance of the Study and Problem Statement

Entrepreneurship is vital for a country as South Africa, filled with ongoing socio economic problems. It has the ability to alleviate social issues such as unemployment and poverty through financial independence. However, entrepreneurship and SMEs are a source of concern in South Africa. Problems experienced by SMEs should be investigated especially from their perspective. Investigating their experiences leads policy makers to design customised SME policies and polices that foster entrepreneurship. The benefit of an environment that enhances a prosperous SME is needed in South Africa. Finance is vital for the firm's growth. It is imperative in developing and growing a new venture. However, most South African SMEs are limited by their access to finance, specifically equity and debt finance, as a result of them being at the lower stage of growth (Abor and Quartey, 2010; Happy, 2011). They have limited access to capital markets as they are not large enough to

attract equity investment and to achieve listing. And they do not have access to debt financing because of their lack of collateral and previous cash flows, they are deemed risky for debt financing. Thus internal finance is the most sustainable source of financing for South African SMEs.

This paper seeks to extend research on 'firm growth and finance' literature. The paper's notion is that access to finance leads to firm growth. Firm growth leads to increased internal finance subsequently, when reinvested, leading to a continuous cycle of firm growth. As such this study seeks to understand whether a South African SME grows as a result of their internal finance. There has been great academic attention on growth and finance however research does not focus on internal finance but rather on external financing, with the exception of two published studies. A study on internal finance and growth by Carpenter and Petersen (2001) asked the question: Is firm growth is constrained by internal finance? The study found internal finance limits small firm growth. Another study was done by Guariglia, Liu and Song (2008) which focused on whether internal finance fosters or constrains firm growth. This study found internal finance to foster firm growth. Though these two studies investigate the impact of internal finance on firm growth, they do not focus on African countries or on SMEs. Nor are there similar studies on internal finance and African firm growth or SME growth. Thus there is a gap in literature. In addition, these studies did not distinguish between the types of internal finance such as: retained earnings, fixed assets and current assets. This study will refute the Carpenter and Petersen (2001) study by using South African SME firms. Furthermore, this study proposes other types of internal finance and their influence on firm growth. Additionally, the study will examine the external factors of internal finance such as taxes which directly impact the amount of internal finance. Consequently this paper will attempt to find other avenues for firm growth through analysing the relationship between SME growth and internal finance. Therefore assists in finding ways to minimise the

financial challenges faced by SMEs. As such the paper seeks to answer the question formulated by Guariglia et al. (2008): Does the availability of internal finance constrain firm growth? Or does it foster it?

1.4. Chapter Outline

The report consists of 5 chapters. The first chapter present an introduction to the report and discusses the background of the study. The next chapter gives a review of the topic proposed. Chapter 3 is on the methodology of the study. Chapter 4 reports on the finding and discusses the key findings obtained in study. And lastly; chapter 5 gives a summary of the reports and further discusses the recommendations from the findings and the recommendations for future researchers.

1.5. Conclusion

The above introduced the topic to be studied by discussing the importance of entrepreneurship and SMEs in South Africa. The chapter further proposed research questions to be investigated. In addition, the objectives of the study were offered and the significance of the research. More needs to be investigated moving forward from the introduction, as such the next chapter covers the review of the studies done on the topic at hand.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

There are challenges faced by businesses that may limit their growth; many which are beyond their control. Such challenges impact SMEs more extensively. This chapter reviews literature on the challenges faced by South African SMEs and further investigates SMEs' access to finance. Besides; firm growth will be analysed; paying attention to the influence of finance on firm growth. Lastly, the other factors of firm growth will be briefly discussed.

2.2. Challenges faced by South African SMEs

As with all businesses, SMEs face the challenges of running a business in South Africa. They further have to compete with their larger counterparts (Smith and Watkins, 2012). Many studies on the challenges that small businesses face analysed macro and micro issues faced (Brink and Cant, 2003; Cant and Wild, 2013; Olawale and Garwe, 2010). Olawale and Garwe (2010) found that finance was one of the important obstacles for South African SMEs to overcome. Their study focused on the internal factors such as management skills, investment in information technology and cost of production; location and networking; and access to finance and external factors such as economic factors; crime and corruption; and labour, infustructure and regulations. Moreover the study determined economic, managerial, market and infustructure were the determining obstacles SMEs need to overcome. On the other hand; a study by Fatoki and Odeyemi (2010) concentrated on access to credit financing of South Africa SMEs by identifying the determinant of credit approval. Their study found that collateral was a major contributing factor to access to credit. Another study was by Van Scheers (2011) which focused on marketing related challenges. This study suggested that Many SMMEs struggle to employ the concept of marketing. A study by Cant and Wild

(2013) focused on the holistic view on the numerous problems encountered by South African SMEs. Their study analysed the following factors: lack of marketing knowledge and management skills, social issues such as HIV/Aids, human resources and financially related issues. They identified inflation, interest rates, crime, incorrect product pricing strategies, low demand for products, government legislation, unemployment, location and knowledge of target group to be the major challenges faced by South African SMEs. A study by Clover and Darroch (2005) focused on the challenges faced by SMEs from their perspective. The entrepreneurs identified the following limiting factors: lack of collateral, lack of institutional support, funding constraints at start-up, compliance costs allied with Value Added Tax and labour legislation, stress resulting from liquidity and absence of access to service.

2.3. Finance for SMEs

There have been contradicting theories on the choice of a firm's capital structure[4]. Two theories that are briefly mentioned are the Pecking Order Theory (POT) and the MM propositions. The MM I proposition by Modigliani-Miller (1958) states that firm performance is independent of the capital structure of the firm in a perfect capital market (Fosu, 2013). However, capital structure matters for several reasons. The MM I proposition focuses on equity and debt as financing for capital whereas the POT includes internal finance. The POT states that firms choose between the three financing types. Internal finance is selected first. Short term debt is preferred compared to long term debt and equity financing is preferred least (L. Chen and S. Chen, 2009). Research on capital markets implies that internal finance is significantly cheaper than external finance (Carpenter, Fazzari, Petersen, Kashyap and Friedman, 1994). The following are the possible reason; transaction cost, agency problems, costs of financial distress, tax advantages and information asymmetry (Fazzari, Hubbard,

[4] The use of debt and equity to finance firm's operations (Van Aardt Smit and Fatoki, 2011).

Petersen, Blinder, Poterba, 1988). This section investigates the choice of finance for small businesses as it is different to their larger counterparts.

2.3.1. Debt Finance and SMEs

Small businesses rely heavily on banks for financing than their larger counterparts (Carpenter et. al., 1994). Conversely, the lack of availability of information on small businesses leads to information asymmetry and moral hazard problems between them and the bank (Rogerson, 2008). New SMEs are more probable to be less profitable and many small firms are survivalist with little or no debt collateral (Murinde, 2006). They additionally have disproportionate outstanding debt, lack of proven business skills and proven record of successful trading (http://ncr.org.za). Thus financial institutions classify them as high risk entities. In addition; their costs of borrowings are excessive in comparison to their larger and well established counterparts (Happy, 2011). These high interest rates increase their risk to default. Furthermore high costs of screening, low returns are some factors that contribute to the market failure to provide debt financing (Rogerson, 2008).

2.3.1.1. SMEs Access to Banking Services in South Africa

Debt financing cannot be separated from the broader topic of 'access to banking services'. The bank is not the only source of debt financing for SMEs. However, it is the main source. There is a concern of private banks' inability to provide credit to SMMEs (Rogerson, 2008). The South African banking sector is known to be stricter on new business financing. 75% of all new SME credit finance applications are rejected (Fatoki and Odeyemi, 2010). As such only 2% of surveyed Gauteng small business reported using loans (Rogerson, 2008).

A study by Fatoki and Odeyemi (2010) identified the following factors as significant determinants for new SMEs' access to credit by banks: managerial competencies, collateral, location, business plan and the relationship with the bank. Asah and Fatoki (2011) did a

similar study but focusing on SMEs in King William's Town, South Africa. They confirmed the following factors are important determinant of access to debt financing; namely collateral, business information, managerial competencies and crime. Other studies, too, have identified collateral as a factor. Rogerson (2008) has argued that collateral is one of the main contributors of the lack of access to bank finance. Moreover; a study by Ezeoha and Botha (2012) has revealed that South African listed firms which have higher level of collateral have less constrains and a greater availability of long-term debt. The study further recognized that investment in assets considered possible collateral impacted their access to the debt market during the start-up and maturity phases. Besides; a study conducted by the World Bank confirmed the lack of access to debt financing. The study found that it takes 4.13 days to process SME loan application in South Africa compared to an average of 11.3. However, it takes twice as long to process SME loans compared to other businesses loans (http://ncr.org.za).

2.3.2. Equity Financing and SMEs

Financial markets are a source of equity capital. Their advantages include raising capital, liquidity, transparency, volatility and efficiency (Murinde, 2006). A study by Yartey (2008) found that the following are the determinants of equity market development: income level, private capital flow, banking sector development and political risk. According to Yartey (2008) countries with developed stock markets are less dependent on debt financing. However; SMEs does not benefit from this type of financing as they limited have access (Abor and Quartey, 2010).

2.3.2.1. Equity Financing for SMEs

SMEs have limited access to equity markets because their small size disqualifies them from entering the equity market (Rogerson, 2008). Likewise there is information asymmetry between possible equity investors and SME owners. As such their ability to yield reward is

unknown. A study by Becchetti and Trovato (2002) showed that Italian small firms have greater potential for growth. However; they have limited access to external finance and foreign capital markets.

There are 2 types of equity financing available to SMEs; namely business angles and venture capitals (http://ncr.org.za). A study by Kerr, Lerner and Schoar (2014) analysed the role of angles groups on the growth, funding and access to further external funding. They recognized that business angles did not have positive impact on access to further funding. Another study on access to equity financing focused on the choice between venture capital and bank debt finance. This study was by Winton and Yerramilli (2008). They identified that venture capitalists play a more active role in monitoring the SME and a significant role in their crucial decision than banks do. Thus the choice between the two is dependents on the firm's circumstances. This study maintained that a firm choses venture capital when their profits are not too high, their sufficiently high returns and risk are positively skewed, it strategic uncertainty (uncertainty associated with the risky continuation strategy), low probability of success and low liquidity value.

2.3.3. Internal Finance

Internal finance is commonly referred to as cash flows (Carpenter et.al, 1994). Investing in one's business is an important component for business expansion. Investing required finance and external sources of finance, however; lenders and investors are often doubtful of small businesses compared to their larger counterparts. Thus small businesses often rely on internal sources of finance for investments (Arbuckle, n.d.; Segarra and Teruel, 2009). Arbuckle (n.d.) listed the following as the different types of internal finance; earnings, current assets, fixed assets and personal savings. Essentially internal finance include: "income before

extraordinary items, depreciation and amortization, deferred taxes, sale of PPE[5], inventory decrease and net disinvestment" (Barnes and Pancost, 2010: pp. 5).

2.3.3.1. Internal Finance VS External Finance

Studies on small firms have argued that they rely more on internal finance than bank debt. Besides small firm seem to be bias towards internal sources of finance. Therefore limiting their investment options (Segarra-Blasco and Teruel, 2009.). A study by Segarra-Blasco and Teruel (2009) discovered that low-growth firms are more sensitive to short-term debt and cash flow while high-growth firms are more sensitive to long-term debt. Additionally; internal cash flow was recognized to increase with the firm's age. The study further established that firms during the start-up phases lacked access to debt financing then as they grow with their equity and long-term debt funding becomes available. Another study was by Dickerson, Gibson, Tsakalotos (2000). The study revealed that UK firms found no evidence of managers using internally sourced funding to finance acquisitions which had a detrimental impact in their profits.

2.4. Finance and Firm Growth

A study by Abor and Quartey (2010) identified the following factors largely limit SMEs' development: lack of access to appropriate technology, limited access to international markets, the existence of laws, regulations and rules that obstruct the development of the sector, weak institutional capacity, lack of management skills and training, and predominantly finance. This section discusses the theoretical models of firm growth and the empirical studies of firm growth; attentive to the studies done on finance and firm growth.

[5] Plant Property and Equipment

2.4.1. Theoretical Firm Growth Models

Firm growth is a complex process and is different for each firm (Deakins and Freel, 1998). Churchill and Lewis (1983) argued that any successful firm goes through a life cycle of growth. However, other researchers have challenged the cycle by stating that it is too simplistic. Instead, the growth process is postulated to consist of components of 'spurts of growth' with relative periods of stability (Deakins and Freel, 1998). Deakins and Freel (1998) suggested that 'entrepreneurial learning' is a determinant of firm growth. The learning process is rarely planned but learnt through a series of reactions to dire events in which the entrepreneur learns to process information. As such learning theories are essentially learning-by-doing. The learning process can take place through the effort to solve a problem, no matter how small (Deakins and Freel, 1998).The theory was proposed by Jovanovic (1982). He noted that:

> Efficient firms grow and survive; inefficient firms decline and fail. Firms differ in size not because of fixity of capital, but because some *discover* that they are more efficient than others (Deakins and Freel, 1998: pp. 148).

The theory of the firm learning theory predicts that firm growth is linked to the level of human capital embedded in the firm's entrepreneur. Start-up firms are unaware of their efficiency level; however, overtime they learn more about their efficiency level. Efficient firms enjoy lower costs and expanded outputs (Deakins and Freel, 1998). This theory was further extended by Pakes and Ericson (1998). The manager's level of efficiency is influenced by their human capital. Firm growth directly related to human capital embedded in the entrepreneur and indirectly to initial firm size and firm age (Rous and McPherson, n.d.).

There is a long standing theory that small firm growth is constrained by internal finance (Carpenter and Petersen, 2001). However, theory of firm growth began with the 'theory of

the Growth of the Firm'. This theory developed by Penrose (1959) defines growth as both a developmental internal process and a growth in amount.

2.4.2. Empirical Studies on Finance and Firm Growth

A study on Egyptian listed firms from 1997 till 2005 revealed that firm performance is not dependent on the firms' capital structure (Ebaid, 2009). However the studies below maintain otherwise.

2.4.2.1. Studies on Debt and Firm Performance

The MM II proposition by Modigliani-Miller (1963) revised MM I proposition with the inclusion of tax benefited. They argued that tax benefits influences a firm's capital structure. A firm is able to maximize its value through more debt as debt is a tax-allowable expense. However; there have been arguments on the use of excessive debt as it can lead to consequences such as financial distress (Abor, 2007). A study by Fama and French (1998) has found empirical prove of the negative effects of excessive use of debt. The study found a negative relationship between profitability and leverage. Excessive use of debt results in agency problems among creditors and shareholder (Abor, 2007).

When comparing firms with access to credit and those without credit, access to credit has led to better growth prospects. However, ambiguous results are obtained. A study on Romanian MSEs[6] identified that access to credit has resulted in the rapid growth of MSE. On the other hand; a study by the World Bank has shown that lack of access to credit has been a deterrent to SME firm growth in Durban and Johannesburg (Rogerson, 2008). In addition, Fatoki (2012) found that debt financing partially facilitated the relationship between Entrepreneurial Orientation[7] and South African SME firm performance. However; a study by McPherson and

[6] Medium and Small Enterprises

[7]Entrepreneurial Orientation is a decision-making taken by an established firm to favour entrepreneurial activities.

Rous (n.d.) found access to credit not a determinant of growth for USA small firms. As such debt is not used to measure entrepreneurial growth. The study reported that there was no evidence suggesting the firms with credit exhibit greater levels of growths compared to their counterparts with less access to credit. Further, a Swedish study on SMEs' debt policy and firm performance revealed that debt ratios (trade credit, short – term debt and long – term debt) do not have a positive impact of firm performance measured by profitability (Yazdanfar and Öhman, 2015).

The above studied did not exclusively analysed the link between financial leverage and firm performance. Past studies have yielded conflicting empirical results (Fosu, 2013). A study by Fosu (2013) explored the link among leverage and the performance of the firm. The study utilized a panel data consisting on 257 South African firms during a period of 1998 – 2009. The data yielded significant positive results between firm performance and financial leverage. The study further analysed the influence of market competition on leverage. The study found that product market competition further enhanced the effect of leverage.

2.4.2.2. Studies on Equity and Firm Performance

Markova, Petkovska-Mircevska (2010) argued that business angels play a vital role in supporting innovation when they provide start-up companies with outside equity capital. A study by Kerr et al., (2014) found that entrepreneurial finance through angle groups is associated with the improved probability of four more years and higher employment. On the other hand they have not identified the cost of venture capital financing. Furthermore, the study could not observe equity positions in unfunded firm as such the study could not conclude whether venture capital was worth it. Kerr et al. (2014) confirmed the positive impact of being associated with business angles. They found that business angles had a significant and positives role on the survival and growth of new firms. Further, a study by Segarra and Teruel (2009) on manufacturing small Spanish firms revealed that firms that

have access to equity financing increased with size and firm's age. Moreover, a high equity percentage to total finance increased their probability to access bank loan financing as it eases information asymmetry problems.

However, the above studies did not analyse equity exclusively. A study by Lee and Moon (2011) investigated zero-leveraged firms and their long-run common stock performance. The study was for a period of a minimum of at least 3 consecutive years. They found that their zero- debt is an important determinant of share returns. Likewise; Loderer and Waelchli (2010b) found listed firms to be better performers compared to non-listed firms, where performance was measured by size and profitability. The study used listed 86 firms land 185 unlisted firms from the largest firms headquartered in Switzerland. The Chaouani (2010) study on French firms found listed firms perform better compared to unlisted, where firm performance was measured by size and profitability.

2.4.2.3. Studies on Internal Finance and Firm Performance

The above studies were on external finance. A study that inferred my hypothesis was conducted by Carpenter and Petersen (2001) using a sample of 1600 small firms. The study used unbalanced panel data on American firms. They found that the usual firm retained all of its income, and raised relatively little external cash. Their regression analyses showed that there is a slightly greater than a dollar- for- dollar relationship for firms who use little or no external equity financing. Further the results showed that small firms are constrained by internal finance. However a study was conducted by Guariglia et al. (2008) on Chinese firms contended the contrary. This study also used unbalanced panel data on the mining and manufacturing sectors. The study found that though frequently discriminated against by financial institution, private firms experienced extraordinary growth rates. Thus suggesting their internal finance has positively impacted their growth.

2.4.3. The 'Other Factors' Contributing To Firm Growth

There are other studies which analysed 'other factors' of firm growth beside finance. Smith and Watkins (2012) has identified that factors such as finance, less rigid legislation and training are vital in promoting entrepreneurship. A study by McPherson and Rous (n.d.) found other factors of firm growth instead of debt financing. The determining factors were found to be: firm age, initial firm size, human capital accumulated in firm's employees and industry sector in which it operates.

2.4.3.1. Education and Training

Education and training is the main factor that hinders firm growth (Olawale and Garwe, 2010). Training SME owners or managers could assist in how they approach certain problems in a manner that saves time and money and find procedures and rules that can result in fewer difficulties. Many studies have proven that entrepreneurs can be trained while others have argued that training is vital for the firm's development (Ladzandi and Van Vuuren, 2002). The 2010 GEM[8] report stated that South African SMEs suffer from poor management as a result of the lack of education and training (Herrington, J. Kew, and P. Kew, 2010). It has been argued that entrepreneurs with more education and training have the ability to adapt to the ever changing environment.

A study done on Gauteng SME illustrated that lack of training and managerial skills impeded business development (Smith and Watkins, 2012). This was agreed by Martin and Staines (2008). They concluded that the main reason why new firms fail is as a result of the lack of managerial experience and skills (Olawale and Garwe, 2010). Moreover, Smallbone and Welter (2001) maintained that new SME firm performance was impacted by managerial competencies measured by education, managerial experience, start-up experience and knowledge of the industry (Fatoki and Odeyemi, 2010).

[8]Global Entrepreneurship Monitor

Lack of educations and training has contributed to the high failure rate of new South African firms by reducing their management capacity (Fatoki and Odeyemi, 2010). A study on 1000 SMEs confirms this argument. The study revealed that 90% of them believe that the lack of managerial skills is the reason why small businesses fail (Roger, 2008). The higher the managerial competencies a new firm has the greater their chance of survival (Fatoki and Smith, 2011). This enables them to learn to grow. However, studies have disputed that some entrepreneurs see little need for skills training (Rogerson, 2008).

2.4.3.2.Tax

MM II proposition above argued the benefits of tax shield; however the studies below argue against it for firm growth. Studies have agreed that resources that could be used for firm development were swallowed up by complying with tax requirements. SMEs' experiences are that they do not have enough skilled staff to meet the tax requirements; thus resulting in an increasing burden. Abrie and Doussay (2006) have identified tax compliance requirements as a stumbling block for South African SMEs as they incur both internal and external costs when trying to comply with their tax obligations as a result, hinders their growth (Olawale and Garwe, 2010). They did a study on SMEs in Gauteng and found that not a single SME have a very good relationship with SARS[9]. A World Bank Group study by Stern and Barbour (2005) focused on the tax regimes of three African countries: South Africa, Zambia and Rwanda. The study showed that the countries' high effective tax burden have inhibited firm growth.

2.4.3.3. Characteristics Specific to the Firm

According to Evans (1987) the three key characteristics are: size of the firm, age of the firm and number of plants the firm operates. Gibrat's Law (1931) suggests that firm growth is independent of firm size. Thus the change in size is the same for all firms in the industry

[9]South African Revenue Services

during the same period, regardless of their size at the beginning of the duration. The law has been tested and proven empirically in the past however, these studies used a sample of large corporations. In fact, when small corporations are included the law did not hold – firm growth was found to be negatively related. Younger firms were found to grow at a greater rate compared to their larger counterparts (Audretsch and Dohse, 2007). Evans (1987) observed a negative relationship between firm growth and size was observed using a small sample of manufacturing firms. This study too accepted a departure from Gibrat's Law.

The Evans (1987) study further reported a negative relationship between firm growth and firm age. Age decreases the probability of growth, failure and the variability (Evans, 1987). The life cycle approach to firm growth suggests that the growth of the small business is linked to age (Deakins and Freel, 1998). Additionally, the age variable is found to be consistent with the learning theory by Jovanovic (1982). Loderer and Waelchli (2010a) argued that age should decrease costs as a result of the learning through age. The study found profitability to decline with age.

Location is one of the key factors for firm growth. However, it has been overlooked in the past and the above mentioned was focused on. The advantages of a great location are: labour market pooling; development of specialised intermediate goods; and knowledge spill-overs (Audretsch and Dohse, 2007). A study by Audretsch and Dohse (2007) found that location characteristics influenced firm growth measured by employment growth. These results suggest that the economic value of a location will manifest its self in higher firm growth rates. Furthermore, industry and firm specific characteristics were found to be influencers of firm growth. Firm growth thrives under a location where there are knowledge resources. Market opportunities are impacted by location. Likewise, proximity to key buyers and suppliers allow the new firm to take advantage of growth opportunities in the market

(Olawale and Garwe, 2010). In addition; Marshall (1980) has argued that geographically area has resulted in greater firm efficiencies.

Research has argued that South African SMEs lack marketing skill which has resulted in businesses to fail. A study by van Scheers (2011) revealed a negative impact of the lack of managerial marketing skills on the success of the business.

Van Auken, Madrid-Guijjarro and Garcia-Perez-de-Lema (2008) argued that innovation assist SMEs to be able to take the competitive edge over their competitors. Their study showed that innovation improved performance in high and low technology firms.

2.5. Conclusion

Factors such as collateral, legislation, location are the challenging factors that South African SMEs face. Finance is the second most challenging factor as many SMEs do not have access. Studies on finance and South African SMEs focus on their access to debt finance. As such there is a gap in literature on equity and internal finance. Even though research has shown the impact of finance on firm growth; there is a lack of documented studies on SMEs and the influence of internal finance, especially on South African SMEs. Besides, prior studies have investigated and confirmed other determining factors of firm growth. Thus these factors are investigated to compare.

CHAPTER 3: METHODOLOGY

3.1. Introduction

This chapter covers the tools, methods and techniques used to collect the data and obtain the results of the study. These include the hypotheses tested and the statistical analyses used.

3.2. Research Hypothesis

The hypotheses are based on the research question and the objectives set in this study. The null hypotheses are as follows:

3.2.1. Relationship between internal finance and firm growth

H_0: There is no relationship between internal finance and firm growth

H_1: There is a positive relationship between internal finance and firm growth

3.2.2. Relationship between the types of internal finance and firm growth

H_0: Different types of internal finance do not impact firm growth

H_1: Different types of internal finance positively impact firm growth

3.2.3. Relationship between firm growth and other factors

H_0: There is no relationship between firm growth and the other factors of growth

H_1: There is a relationship between firm growth and the other factors of growth

3.2.4. Relationship between internal finance and other factors

H_0: There is no relationship between internal finance and the other factors of growth

H_1: There is a relationship between internal finance and the other factors of growth

3.3. Variables and Data

3.3.1. Variables

Most studies on firm growth focus on the increased amount of business growth measurements (Leitch, et al., 2010). There are a number of business growth definition and measurements which include: absolute or relative changes in employment, turnover, asset, profit, profit margins and productivity (Leitch, et al., 2010; Olawale and Garwe, 2010). However, this study used turnover and assets measure the growth of SMEs**.** According to Olawale and Garwe (2010) turnover is a good measure of growth as it is considered an accurate measure of how a firm is competing relative to its competitors. The education variable was omitted as all the companies' management personnel have tertiary education. The other factors used are descripted in Table 3.1 below.

3.3.2. Data

Panel data will be used in the study as the method assists in the study of various issues where data is available for a short period of time (Gujarati and Porter, 2009). The unbalanced data was collected on companies on the AltX section of the Johannesburg Stock Exchange. It was launched in 2003 and was dedicated to growing businesses. Their listing requirements are stipulated are less restrictive compared to the main board requirements as seen in table 1.2, Appendix C. There are more than 116 companies since inception and more than R38.7 billion has been raised. 29 companies have graduated to the main board (www.jse.co.za). This makes the AltX more advantageous for growing businesses. This sample was more suitable for this study as the variable 'internal finance' was easily available compared to focussing on small businesses. There are 64 SMEs currently on the JSE however, only 57 company statements were found on the website which formed the sample of the study. The information from the companies' financial statements was derived from the INET BFA (formerly known as McGregor BFA) website to derive the information needed.

Table 3.1: Variables Used

Factors	Variable name	Description
Internal Finance		
Internal finance	Internal finance	And average of the amount of retained earnings, fixed assets and current assets recorded
Retained earnings	Retained earnings	Amount of retained earnings recorded
Fixed Assets	Fixed Assets	Amount of fixed assets recorded
Current Assets	Current Assets	Amount of current assets recorded
Firm Growth		
Size	Size	Number of employees employed by the firm
Turnover	Turnover	Amount of turnover recorded
Others Factors		
Debt	Debt	Amount of debt recorded
Equity	Equity	Amount of equity recorded
Age	Age	Number of years since firm was established
Location	Location	Location of firm's headquarter[10]
Taxation	Tax	Amount of taxation expense recorded
Industry	Industry	Industry set out by JSE AltX[11]

Source: Arbuckle (n.d.); Barnes and Pancost (2010); Chaouani (2010); Guariglia et al. (2008) and Olawale and Garwe (2010).

Standardized[12] financial statements were collected for the last 10 years[13]. In addition; information and data from the World Bank on SMEs in other emerging markets was used for analysing, discussing and to compare.

[10] The coding was as follows: 1=Gauteng, 2=KZN, 3= Free State, 4= Western Cape and 5= Outside SA
[11] The coding was as follows: 1=Industrials, 2=Health, 3= Technology, 4= Financials, 5= Basic Material, 6= Consumer Goods, 7= Consumer Services, 8= Utilities and 9= Telecommunications
[12] Standardized financial statements were used to be able to compare among the different industries.

How the sample was selected is the main limitation to the study. The sampled firms were limited to SMEs on the AltX JSE. A use of a convenience sample was used as a result of time limitations. Consequently, the results obtained cannot be presumed to be the true sample of the South African SME population. This sample is a type of non-probability, opposed to a random selection; hence representability of the true population is unlikely due to assess (Coldwell and Herbst, 2004). This may have a bearing of the resulted obtained.

3.4. Panel Data: Fixed Effects Regression Model (FEM) VS Random Effects Model (REM)

This study employed both random and fixed effect panel data methods to examine the relationship between firm growth and internal finance and to answer the research questions. The pooled regression is a simple approach and ignores the time dimension of the panel data (Gujarati and Porter, 2009). Hence it was not selected. Based on table 3.2 below; the fixed effect model is more favoured. This data sets fall under the FEM criteria, hence making the

Table 3.2: FEM Vs REM

Fixed Effects Model	**Random Effects Model**
If there is an assumption of the correlation between the individual error component ε_i and one of the independent variables; the estimated obtained would be unbiased.	If there is an assumption of the correlation between the individual error component ε_i and one of the independent variables; the estimated obtained would be biased
The sample size is not randomly selected.	The sample size is randomly selected.
The number of cross-section observation (N) is smaller and the number of time-series observation (T) is small. The choice is based on computational convenience.	The number of cross-section observation (N) is larger and the number of time-series observation (T) is small. The estimates obtained would differ significantly. Therefore choice is based on 'random selection'.

Source: Ghauri and Gronhaug (2010)

[13] 10 years of the recorded data on the INET BFA ranging from 2003 up to 2015.

fixed effect technique the most viable method of estimation. However, panel diagnostic tests confirmed both methods.

Table 3.2 summaries the difference between the FEM and the REM. In addition; If N > T the estimates obtained would differ significantly. This is because in $\alpha_{1i} = \alpha_1 + \varepsilon_i$; the ε_i is the cross sectional random component under the REM while α_{1i} in the FEM is treated as fixed. Therefore statistical inference is conditional on the individual units not been randomly drawn from a larger sample under the FEM. Then the REM is appropriate when individual units are randomly drawn from a larger population (Ghauri and Gronhaug, 2010).

3.4.1. The Fixed Effects Regression Model

This model allows the individual or time characteristic of each firm through the intercept. This can be done through creating dummy variables. The fixed effects model is as follows:

$$Y_{it} = \alpha_{1i} + \alpha_2 X_{2it} + \ldots + \alpha_5 X_{5it} + u_{it} \qquad \textbf{(model 1)}$$

Where the Y is the dependent variable firm growth and X's are the independent variable internal finance or variables internal finance types, *i* is the individual firm and *t* is the time factor. Moreover, α_{1i} is treated as a fixed variable.

The model 1[14] assumes that the intercept is time invariant while the coefficients of the slopes are constant over time and across individuals. This is a pooled regression, the naïve or simple approach where it was converted into the model 2, below, to allow for the individuality of the firms. This model is called the Least - squared Dummy Variable (LSDV) Model (Ghauri and Gronhaug, 2010).

[14] Model 1 assumes that all the intercept and the coefficient slopes are constant across time and individual firm (space); where the error term takes into account the differences over time and space. There are other model besides those specified, see Ghauri and Gronhaug (2010) pages 640-647.

$$Y_{it} = \beta_1 D_{1i} + \beta_2 D_2 i \ldots + \beta_{56} D_{56} i \ldots + \alpha_1 X_{1it} + \ldots + \alpha_5 X_{5it} + u_{it}$$

(model 2)

Where D_{1i} = 1 if the observations belong to the first firm, 0 otherwise; $D_2 i$ =1 if the observations belong to the second firm, 0 otherwise; $\ldots D_{56} i$ = 1 if the observations belong to the 56th firm, 0 otherwise. And the intercept is omitted to avoid the dummy trap.

The time effect can be modelled similar to the above model; where the dummy variables represent the different times (Ghauri and Gronhaug, 2010).

3.4.2. Random Effects Model

This model questions necessity of including dummy variable – and the subsequent loss of degrees of freedom as a result (Ghauri and Gronhaug, 2010). The variable α_{1i} in model 1 is treated as a random variable with α_1[15] is the mean value. The intercept is expresses as follows:

$$\alpha_{1i} = \alpha_1 + \varepsilon_i \qquad i = 1, 2\ldots, N$$

Substituting the above expression into model 1 gives model 1' below:

$$Y_{it} = \alpha_{1i} + \alpha_2 X_{2it} + \ldots + \alpha_5 X_{5it} + u_{it}$$

$$Y_{it} = \alpha_1 + \alpha_2 X_{2it} + \ldots + \alpha_5 X5it + \varepsilon_i + u_{it} \qquad \textbf{(model 1')}$$

3.5. Statistical Analysis

The study employed Gretel statistical programme through a combination of descriptive statistics and linear FEM and REM to test for the hypotheses stated. The study proposes the

[15] The sample of firms is assumed to have a true population average of α_1. The individual firm different in the intercept are represented in the error term ε_i

following four equations to be tested to meet the studies objectives. In equation 1, growth is described as a function of internal finance; where growth is measured by firm assets and turnover.

$$Growth = F(Internal\ Finance) + \varepsilon. \quad \ldots\ldots\ldots\

understand the impact of internal finance on firm growth. The third and fourth model equations were chosen to better understand firm growth. Research have countless proven that there are other factors that influence firm growth other than internal finance, particularly debt financing for South African SME firm. Other factors include equity, taxes, location, firm size and age. As such it is expected to find a significant impact of the other factors on firm growth, when they are included in the model. The fourth equation was to investigate the influence of the other factors on internal finance. Though there was no documented research, it is expected to find external finance to be a significant factor. The next chapter reports on the results obtained in the study.

CHAPTER 4: RESULTS

4.1. Introduction

This chapter reports the key findings of the study. The results are presented in two subsections: descriptive statistics, which serves as an introduction to the results, and statistical analyses which are structured in terms of answering the research questions. Initially the firm characteristics are presented to get a picture of the type of firms analysed in this study.

4.2. Demographics of the Firms

Table 4.1: Characteristics of the 57 Companies

Industry									
Industrial	Health	Technology	Financial	Basic Material	Consumer Goods	Consumer Services	Utilities	Telecommunications	Total
13	2	7	16	8	6	3	1	1	57
Location									
Gauteng	KZN	Western Cape	Free State	Outside SA					
38	4	4	1	9					57
Size									
<50	51-99	100-149	150-200	>200					
33	4	1	2	17					57
Age									
<25years	26-50 years	51-75 years	75-100 years	> 100 years					
41	8	3	2	3					57

Table 4.1 presents the firms sample grouped into demographic characteristics. The firms were firstly grouped into the sectors as stipulated in the JSE AltX sector. Then the companies were grouped per province, firm size and age group. Most of the sampled firms, 29%, are in the financial sector followed by the industrial sector. It is evident that majority of the sample reside in Gauteng with 67%. Even though all the sampled firms operate in South Africa, a moderate 17% reside outside South Africa to locations such as London, Mauritius and

Bermuda. Majority of the firms (72%) were incorporated from 1990 and only 3 firms had more than 100 years of experience. Table 4.2 and 4.3 in Appendix B represent the structure of the unbalance data. Table 4.2 shows the contribution of each observation to the data set. Most firms contributed approximately 2%. Table 4.3 illustrates the contribution of each year to the data set with the years 2007-2015 representing most of the data at 93.8%.

4.3. Descriptive Statistics

Preliminary descriptive statistics was done to illustrate the description and to get a feel of the dataset, as seen in table 4.4 and 4.5. It illustrates how your data appears and further provides a profile of the respondents surveyed (O'Neil, 2009).

Table 4.4: Descriptive Statistics of the 57 Companies – Age and Size

Variable	Size	Age
Mean	282.5614	26.37931
Standard deviation	738.5589	27.45384
Minimum	0	0
Maximum	5 214	129
Skewness	5.610284	2.183638
Kurtosis	35.96237	-1.51594
JB statistic [p value]	10 501.8 [0]	298.289 [1.68819e-065]

Table 4.4 presents the means, standard deviations, minimum and maximum values, skewness and kurtosis coefficients of the characteristic variables age and size. Moreover the JB (Jarque-Bera) statistics and p value were represented. The test was done to verify the conclusion from the skewness and kurtosis coefficients. The variable size has a mean of 282.6, with a standard deviation of 738.6, with scores ranging between 0 and 5214. The age variable has a mean of 26.4 and a standard deviation of 27.5. The variable has values from 0 to 129. Both variables are not normally distributed as the skewness coefficients are outside the range $+1 \leq k \leq -1$ (Huck, 2009). Furthermore, their kurtosis coefficients are not equal to

the normal distribution value of 3 (Brooks, 2008). This was confirmed by the JB test which assumes normality as the null hypothesis states that the variable is normally distributed and the alternative hypothesis states otherwise. Both p values are small with a large JB statistic; as such the two variables are not normally distributed.

Table 4.5: Descriptive Statistics of the Non-Characteristic Variables Over the Last 10 Years

	Internal Finance	Retained Earnings	Fixed Assets	Current Assets	Debt	Equity	Taxes	Turnover
Mean	-6 172 166	-378 846 651	174 067 603	186 262 551	221 361 810	215 919 028	3 363 595	288 811 135
Standard Deviation	909 684 606	2 706 187 911	506 276 545	795 853 300	436 443 423	978 608 910	13 260 711	488 828 883
Minimum	-8 151 977 000	-25 371 223 000	0	0	0	-824 888 000	-164 512 000	0
Maximum	4 114 632 545	4 147 863 945	7 774 726 972	14 783 576 000	4 100 701 685	14 794 634 000	103 247 000	3 347 039 000
Skewness	-7	-8	10	17	4	11	-3	3
Kurtosis	55	65	144	308	26	149	82	13
JB Statistic[p value]	102 235 [0]	109 797 [0]	963 700 [0]	388 568 [0]	97 773.3 [0]	223 962 [0]	614 124 [0]	242 822 [0]

Table 4.5 above denotes the descriptive data of the non- characteristic variables over the last 10 years of the firms operations. The average of internal finance was R-6 172 166, with a standard deviation of R909 684 606, with scores ranging between R-8 151 977 000 and R4 114 632 545. The average of retained earnings was R-378 846 651 and a standard deviation of R2 706 187 911, with scores ranging between R-25 371 223 000 and R4 147 863 945. Average fixed assets amounted to R174 067 603 with a standard deviation of R50 6276 545 and a minimum value of 0 and a maximum of R7 774 726 972. Current assets had a mean of R186 262 551 (standard deviation of R795 853 300) ranging from 0 to R14 783 576 000. The average debt of over the last 10 years was R221 361 810 with a standard deviation of R436443423 ranging from R0 to R4 100 701 685. The average amount of equity recorded was R215 919 028 with a standard deviation of R978 608 910 ranging between and R-824888000 and R14 794 634 000. The average tax amount recorded was R3 363 595 (standard deviation of R13 260 711) ranging from an R-164 512 000 to R103 247 000. The

average turnover recorded was R288 811 135 with a standard deviation of R488 828 883 ranging from an R0 to R3 347 039 000.

All the variables are not normally distributed as the skewness coefficients are outside the range $+1 \leq k \leq -1$ and the kurtosis coefficients were not equals to 3. This was confirmed by the JB test. The test examines the null hypothesis of normality compared to the alternative hypothesis of non-normality. The significant p values imply that the above variables are not normally distributed.

4.4. Statistical Analysis

4.4.1. Panel Model Diagnostics Tests

Panel data regression analysis consists of three models; namely: pooled OLS regression, FE and RE. Prior to running the respective panel regression model, panel diagnostic tests were conducted to confirm which regression model fits the data. The following three tests were conducted:

i. Joint significance of Differing Group Test: test between the pooled OLS regression and the FE model. The null hypothesis states that the pooled OLS model is adequate while the alternative hypothesis states that the FE model is adequate.
ii. Breusch-Pagan Test Statistic: test between the pooled OLS model and the RE Model. The null hypothesis states that the pooled OLS model is adequate while the alternative hypothesis states that the RE model is adequate.
iii. Hausman Test Statistic: tests between the FE and the RE model. The null hypothesis states that the RE model is adequate while the alternative states that the FE is adequate.

The results shown below confirm that a FE model is an appropriate method for models 1 and 2 while RE is appropriate for models 3 and 4. Models 1 and 2 tested equation 1 mentioned above in section 3.5. Initially a pooled OLS regression was run for both models. Though the models were significant[16], the models showed signs of serial autocorrelation[17]. To correct for this lags of the independent were included as seen below in tables: 4.6 – 4.8 and 4.10 - 4.12. The models were lagged twice to obtain no autocorrelation with the Durbin Watson statistics were 1.934962 and 2.100470 respectively for model 1 and model 2. The p values for the Joint significance of Differing Group Test were 2.37165e-012 and 6.19408e-052 respectively for models 1 and 2 thus the FE model should be run. The p values of the Breusch-Pagan Test Statistic were 0.152688 and 0.65377 respectively. Hence the pooled model should be run. Lastly, for the Hausman Test Statistic, the p value was 3.80926e-050 for model 1 and 2.11961e-225 for model 2; as such the FE model was run – see below tables: 4.9 and 4.13.

Equation 2 was tested using models 3 and 4. Similar steps were taken for models 3 and 4. This resulted in the turnover variable being lagged twice and retained earnings being omitted as it was not significant for model 3, see tables: 4.14 – 4.17, and assets was lagged once for model 4, see tables 4.19 – 4.20. The p values for the Joint significance of Differing Group Test were 7.46767e-066 and 7.72921e-015 respectively for models 3 and 4 consequently stating the same result conclusion as models above in favour of the FE model. The p values of the Breusch-Pagan Test Statistic were 2.7367e-095 and 0.0069762 respectively, in favour of the RE model. Lastly, for the Hausman Test Statistic, the p values were 0.942207 and 1.79769e+308 respectively; in favour of the RE model, see above in tables: 4.18 and 4.21.

[16] These results used a 5% level of significance for all the results obtained in order to determine the significance of the results obtained.

[17] Closer to 2 shows no autocorrelation, closer to 1 shows a positive autocorrelation and closer to 4 shows a negative (Ghauri and Gronhaug, 2010).

MODEL 1

Table 4.6: Model 1 –Turnover and Internal Finance

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	2.19265e+011	4.45439e+011	0.4922	0.62284	
Internal Finance	−0.196566	0.00442623	-44.4093	<0.00001	***
R-squared	0.842387				
Adjusted R-squared	0.841960				
Durbin-Watson	1.731992				
P-value(F)	4.1e-150				***

Table 4.7: Model 1 –Turnover and Internal Finance with Lag of Dependent Variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	−9.34942e+010	3.17276e+011	-0.2947	0.76844	
Internal Finance	−0.178881	0.0038678	-46.2487	<0.00001	***
$Turnover_{t-1}$	0.286623	0.0164495	17.4244	<0.00001	***
R-squared	0.941065				
Adjusted R-squared	0.940686				
Durbin-Watson	2.663006				
P-value(F)	6.2e-192				***

Table 4.8: Model 1 –Turnover and Internal Finance with Lags of Dependent Variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	1.7402e+011	2.06817e+011	0.8414	0.40089	
Internal Finance	−0.232374	0.00334905	-69.3851	<0.00001	***
$Turnover_{t-1}$	0.429819	0.0121568	35.3562	<0.00001	***
$Turnover_{t-2}$	−0.32572	0.0138247	-23.5606	<0.00001	***
R-squared	0.977734				
Adjusted R-squared	3.33e+12				
Durbin-Watson	1.934962				
P-value(F)	0.977477				***

Table 4.9: Panel Diagnostic Tests for Model 1 with Lags of Dependent Variable

Tests	**Statistic**	**p-value**
Joint significance of differing group	F(47, 213) = 3.99272	2.37165e-012
Breusch-Pagan test statistic	LM = 2.04519	0.152688
Hausman test statistic	H = 232.59	3.80926e-050

MODEL 2

Table 4.10: Model 2 – Assets and Internal Finance

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	4.37073e+012	2.60325e+012	1.6790	0.09401	*
Internal Finance	−0.0725888	0.0258679	-2.8061	0.00528	***
R-squared	0.020894				
Adjusted R-squared	0.018241				
Durbin-Watson	1.457230				
P-value(F)	0.005280				

Table 4.11: Model 2 – Assets and Internal Finance with Lag of Dependent variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	3.73663e+012	2.90979e+012	1.2842	0.20004	
Internal Finance	−0.0191334	0.0300766	-0.6362	0.52514	
$Assets_{t-1}$	0.356578	0.0573567	6.2168	<0.00001	***
R-squared	0.122892				
Adjusted R-squared	0.117251				
Durbin-Watson	2.229225				
P-value(F)	1.40e-09				***

Table 4.12: Model 2 –Assets and Internal Finance with Lags of Dependent Variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	3.02133e+012	3.18606e+012	0.9483	0.34386	
Internal Finance	0.0106482	0.0373577	0.2850	0.77585	
$Assets_{t-1}$	0.222096	0.0607004	3.6589	0.00031	***
$Assets_{t-2}$	0.420367	0.0599304	7.0143	<0.00001	***
R-squared	0.259727				
Adjusted R-squared	0.251185				
Durbin-Watson	2.100470				
P-value(F)	6.98e-17				***

Table 4.13: Panel Diagnostic Tests for Model 2

Tests	**Statistic**	**p-value**
Joint significance of differing group	F(47, 213) = 17.8729	6.19408e-052
Breusch-Pagan test statistic	LM = 0.20118	0.65377
Hausman test statistic	H = 1041.16	2.11961e-225

MODEL 3

Table 4.14: Model 3 –Turnover and Internal Finance Types

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constants	−1.20232e+011	4.03856e+011	-0.2977	0.76609	
Retained Earnings	−0.0643561	0.00135976	-47.3289	<0.00001	***
Fixed Assets	−0.0420671	0.019055	-2.2077	0.02789	**
Current Assets	0.0692778	0.0233129	2.9717	0.00316	***
R-squared	0.872208				
Adjusted R-squared	0.871163				
Durbin-Watson	1.286360				
P-value(F)	1.6e-163				***

Table 4.15: Model 3 – Turnover and Internal Finance Types with Lag of Dependent Variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constants	−1.7425e+011	3.07255e+011	-0.5671	0.57105	
Retained Earnings	−0.0610369	0.00132325	-46.1266	<0.00001	***
Fixed Assets	−0.0997273	0.0139696	-7.1389	<0.00001	***
Current Assets	0.0223116	0.0167003	1.3360	0.18253	
$Turnover_{t-1}$	0.261776	0.0206658	12.6671	<0.00001	***
R-squared	0.945347				
Adjusted R-squared	0.944639				
Durbin-Watson	2.579582				
P-value(F)	1.3e-193				***

Table 4.16: Model 3 – Turnover and Internal Finance Types with Lag of Dependent Variable [without Current Assets]

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constants	−1.53627e+011	3.07255e+011	-0.5000	0.61743	
Retained Earnings	−0.0607791	0.00131075	-46.3696	<0.00001	***
Fixed Assets	−0.0889986	0.0114452	-7.7760	<0.00001	***
$Turnover_{t-1}$	0.267609	0.0202248	13.2317	<0.00001	***
R-squared	0.945031				
Adjusted R-squared	0.944499				
Durbin-Watson	2.626862				
P-value(F)	7.2e-195				***

Table 4.17: Model 3 – Turnover and Internal Finance Types with Lags of Dependent Variable [without Current Assets]

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constants	4.84918e+09	7.30854e+010	0.0663	0.94715	
Retained Earnings	−0.0874987	0.000454535	-192.5015	<0.00001	***

Fixed Assets	−0.014166	0.00274017	-5.1697	<0.00001	***
$Turnover_{t-1}$	0.324787	0.00465993	69.6980	<0.00001	***
$Turnover_{t-2}$	−0.414976	0.00560105	-74.0890	<0.00001	
R-squared	0.997232				
Adjusted R-squared	0.997189				
Durbin-Watson	2.292456				
P-value(F)	0.000000				***

Table 4.18: Panel Diagnostic Tests for Model 3 – Turnover and Internal Finance Types with Lags of Dependent Variable [without Current Assets]

Tests	**Statistic**	**p-value**
Joint significance of differing group	F(47, 212) = 0.0131843	1
Breusch-Pagan test statistic	LM = 24.7298	6.59554e-007
Hausman test statistic	H = 0.771655	0.942207

MODEL 4

Table 4.19: Model 4 –Assets and Internal Finance Types

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	-0.000716721	0.000750595	−0.9549	0.3403	
Retained Earnings	0.00000	0.00000	4.113	4.83e-05	***
Fixed Assets	1.00000	0.00000	2.824e+016	0.0000	***
Current Assets	1.00000	0.00000	2.308e+016	0.0000	***
R-squared	1.000000				
Adjusted R-squared	1.000000				
Durbin-Watson	1.304001				
P-value(F)	-				

Table 4.20: Model 4 –Assets and Internal Finance Types with Lag of Dependent Variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	−5.16662e-05	0.000297183	-0.1739	0.86209	
Retained Earnings	1	0	75445097904668272.0000	<0.00001	***
Fixed Assets	1	0	63409071612589216.0000	<0.00001	***
Current Assets	0	0	3.2831	0.00114	***
$Assets_{t-1}$	0	0	16.1700	<0.00001	***
R-squared	1.000000				
Adjusted R-squared	1.000000				
Durbin-Watson	2.133099				
P-value(F)	-				

Table 4.21: Panel Diagnostic Tests for Model 4

Tests	Statistic	p-value
Joint significance of differing group	F(49, 260) = 4.29783	7.72921e-015
Breusch-Pagan test statistic	LM = 7.27909	0.0069762
Hausman test statistic	H = -158.717	1.79769e+308

4.4.2. Research Question Results - FEM and REM Analysis

Fixed Effects models were run for equation 1 and Random Effects model for equation 2 as recommended by the panel diagnostic tests above.

Equation 1: Internal Finance and Growth Measured by Turnover and Assets

Table 4.22: Model 1- Turnover and Internal Finance with Lags of Dependent Variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	6.85472e+011	1.70737e+011	4.0148	0.00008	***
Internal Finance	−0.234556	0.00270257	-86.7900	<0.00001	***
$Turnover_{t-1}$	0.367131	0.0108096	33.9635	<0.00001	***
$Turnover_{t-2}$	−0.433312	0.0136277	-31.7965	<0.00001	***
LSDV R-squared	0.988163				
Within R-squared	0.979402				
Durbin-Watson	2.164296				
P-value(F)	4.8e-180				***
rho	−0.227376				

Model 1 above is significant as the p values of the coefficients of the variables and the joint[18] p value were less than the level of significance of 5%. Additionally, the interclass correlation -rho - of −0.227376 signifies that the variation due to the differences across panels is 23%. The LSDV R-squared was 0.988163 which shows that the model explains 98.8% of variation in turnover across time. Conversely the Within R-squared was 0.979402 which showed that the model explains 97.8% of the data. The Durbin-Watson statistic of 2.164296 is closer to 2 displays that there is no serial autocorrelation. There is a negative relationship between internal finance and turnover; more specifically, an increase in internal finance results in a

[18] P value of all the coefficients instead of them separately

23% decrease in current turnover, keeping other variables constant. In addition, an increase in the previous year's turnover, results in an increase in turnover of 37% when all other variables are kept constant. Lastly, an increase in the previous two years' turnover results in a decrease of 43% on current turnover when all other variables are constant.

The null hypothesis of there being no relationship between internal finance and firm growth measured by turnover was rejected. However; internal finance has a significant negative impact on firm growth. These findings are unexpected as internal finance as the paper's notion is that internal finance boosts firm growth. The model indicated that internal finance does not foster firm growth. This inference is in line with the Carpenter and Peterson (2001) study which reported that small firm growth is limited by internal finance. Besides, small firm rely on internal finance which limits their investment options (Segarra and Teruel, n.d.) as such impacts growth.

Table 4.23: Model 2- Assets and Internal Finance with Lags of Dependent Variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	1.59069e+013	1.64439e+012	9.6734	<0.00001	***
Internal Finance	0.501644	0.0251311	19.9611	<0.00001	***
$Assets_{t-1}$	−0.534213	0.0398832	-13.3944	<0.00001	***
$Assets_{t-2}$	−0.411868	0.0413681	-9.9562	<0.00001	***
LSDV R-squared	0.850262				
Within R-squared	0.678303				
Durbin-Watson	2.353072				
P-value(F)	3.18e-64				***
rho	−0.188226				

Model 2 is also significant a there p values of the coefficients are significant as well as the joint significance of the model. Furthermore, the rho concludes that only 19% of variation is as a result of the differences across panels. The model explains 85% of variation in assets across time according to the LSDV R-squared. Moreover the Durbin-Watson statistic of 2.353072 illustrates no positive correlation and the Within R-squared was 0.678303; the

model explains 67.8% of the data. Consequently there is a positive relationship between assets and internal finance and as well as a negative relationship between assets and the lags of assets. An increase in internal finance results in an increase in assets of 50%. In addition, an increase in previous years' assets results in a decrease of 53% in assets. And lastly, an increase in the previous two years' assets results in a 41% decrease in assets; while keeping other the variable constant.

The null hypothesis was rejected in favour of the alternative hypothesis. This positive relationship found illustrates that internal finance does foster firm growth, as argued by the Guariglia et al. (2008) study. The model states the importance of internal finance on firm growth measured by assets. These finding are expected as firms with more internal finance are more likely to buy assets. Segarra and Teruel, (n.d.) noted that access to internal finance increases investment option which leads to firm growth.

Equation 2: Internal Finance Types and Growth Measured by Turnover and Assets

Table 4.24: Model 3 – Turnover and Internal Finance Types with Lags of Dependent Variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constants	4.84918e+09	7.30854e+010	0.0663	0.94715	
Retained Earnings	−0.0874987	0.000454535	-192.5015	<0.00001	***
Fixed Assets	−0.014166	0.00274017	-5.1697	<0.00001	***
$Turnover_{t-1}$	0.324787	0.00465993	69.6980	<0.00001	***
$Turnover_{t-2}$	−0.414976	0.00560105	-74.0890	<0.00001	***
Breusch-Pagan test	*Chi-square(1)*	*p-value*			
	24.7298	6.59554e-007			
Hausman test	*Chi-square(4)*	*p-value*			
	0.771655	0.942207			

The Breusch-Pagan test is run under the null hypothesis of the variance of the unit-specific error = 0. This is similar to the F tests under the FE model (Fingleton, n.d.). Model 3 above has the asymptotic test statistic of 24.7298 with a significant p value of 6.59554e-007. As

such the model is consistent. The Hausman test tests the null hypothesis that GLS estimates are consistent. This examines whether the GLS model is consistent. The asymptotic test statistic was 0.771655 with a non-significant p value of 0.942207, which fails to reject the notion of the null hypothesis. As such model 3 is consistent. Consequently there is a negative relationship between current turnover and the two types of internal finance. An increase results in retained earnings results and fixed assets, when all the other variables are kept constant, results in a decrease in turnover of 9% and 1% respectively. The model too states that there is a positive relationship between turnover and previous turnover as well as a negative relationship between current turnover and the previous two years turnover. It states that an increase in the previous years' turnover leads to an increase of 32% in previous turnover; while keeping other the variable constant. And lastly an increase in the previous two years' turnover results in a decrease of 42%, when other variables are kept unchanged.

The sampled South African SMEs have access to the different types of internal finance, however three were used. The null hypothesis was similarly rejected for the alternative. Model 3 illustrates that even though the firms have access to internal finance, only two of them had a significant impact on firm growth, measured by turnover. Both retained earnings and fixed assets had negative relations with firm growth. This implied that the two types of internal finance that deter firm growth.

Model 4 below has a couple of issues. The first problem is that the asymptotic test statistic found was 0.23609 with a significant p value of 0.627045 under the Breusch-Pagan test. Thus the model is non-significant. The second issue is that the Hausman test had the asymptotic test statistic of-171.105 with a not applicable p value. And, lastly, the coefficients are values 1 and 0, even though all the variables are significant.

Table 4.25: Model 4 – Assets and Internal Finance Types with Lag of Dependent Variable

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constants	−0.00254632	0.00300885	-0.8463	0.39805	
Fixed Assets	0	0	-8.7201	<0.00001	***
Retained Earnings	1	0	30704027310078508.0000	<0.00001	***
Current Assets	1	0	15715195326006936.0000	<0.00001	***
$Assets_{t-1}$	0	0	7.8008	<0.00001	***
Breusch-Pagan test	*Chi-square(1)*	*p-value*			
	0.23609	0.627045			
					***
Hausman test	*Chi-square(4)*	*p-value*			
	-171.105	NA			

4.4.3. Including Other Factors

Panel Tests were done on Models 5 and 6, similar to the above 4 models. The results confirmed that FE models are suitable (as seen in below, tables: 4.26 – 4.32).

MODEL 5

Table 4.26: Model 5 –Turnover and Internal Finance with Other Factors

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	1.60613e+011	8.8203e+011	0.1821	0.85561	
Internal Finance	−0.133462	0.00838921	-15.9088	<0.00001	***
Debt	0.148413	0.0265609	5.5876	<0.00001	***
Equity	0.0397852	0.00791725	5.0251	<0.00001	***
Tax	−5.31399	0.276393	-19.2262	<0.00001	***
size	1.21311e+07	3.69708e+08	0.0328	0.97384	
Industry	−2.64761e+010	1.53424e+011	-0.1726	0.86309	
Location	2.29551e+010	2.19502e+011	0.1046	0.91677	
Age	−4.35928e+09	1.23124e+010	-0.3541	0.72350	
R-squared	0.929938				
Adjusted R-squared	0.928390				
Durbin-Watson	1.160507				
P-value(F)	8.9e-204				***

Table 4.27: Model 5 – Without Size, Industry, Location and Age

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	−2.37407e+010	2.99426e+011	-0.0793	0.93685	
Internal Finance	−0.133129	0.00829402	-16.0513	<0.00001	***
Debt	0.148084	0.0264043	5.6083	<0.00001	***
Equity	0.03913	0.00766546	5.1047	<0.00001	***

Tax	−5.31013	0.27472	-19.3292	<0.00001	***
R-squared	0.929913				
Adjusted R-squared	0.929147				
Durbin-Watson	1.155587				
P-value(F)	9.7e-210				***

Table 4.28: Model 5 – Without Size, Industry, Location and Age

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	−1.89984e+010	1.12481e+011	-0.1689	0.86598	
Internal Finance	−0.117838	0.00290271	-40.5958	<0.00001	***
Debt	0.197951	0.0102729	19.2692	<0.00001	***
Equity	−0.0222778	0.00291822	-7.6340	<0.00001	***
Tax	−4.51813	0.100088	-45.1416	<0.00001	***
$Turnover_{t-1}$	0.224031	0.00700565	31.9786	<0.00001	***
R-squared	0.992704				
Adjusted R-squared	0.992585				
Durbin-Watson	2.361047				
P-value(F)	0.000000				***

Table 4.29: Panel Diagnostic Tests for Model 5 - Without Size, Industry, Location and Age

Tests	**Statistic**	**p-value**
Joint Significance Of Differing Group	F(49, 259) = 0.249976	1
Breusch-Pagan Test Statistic	LM = 24.1025	8.10455e-008
Hausman Test Statistic	H = 14.8499	0.0110231

MODEL 6

Table 4.30: Model 6 –Assets and Internal Finance with Other Factors

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	−2.97936e+012	1.72634e+012	-1.7258	0.08523	*
Internal Finance	0.650024	0.0164197	39.5881	<0.00001	***
Debt	2.21702	0.051986	42.6464	<0.00001	***
Equity	0.237338	0.0154959	15.3162	<0.00001	***
Tax	−13.6454	0.540966	-25.2242	<0.00001	***
size	−2.14567e+08	7.23606e+08	-0.2965	0.76700	
Industry	4.96037e+011	3.00287e+011	1.6519	0.09943	*
Location	−4.58043e+011	4.29616e+011	-1.0662	0.28706	
Age	8.14363e+010	2.40983e+010	3.3793	0.00081	***
R-squared	0.951185				
Adjusted R-squared	0.950106				
Durbin-Watson	1.961721				
P-value(F)	3.7e-232				***

Table 4.31: Model 6 –Without Size and Location

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	−3.56349e+012	1.61089e+012	-2.2121	0.02758	**
Internal Finance	0.649362	0.0163909	39.6172	<0.00001	***
Debt	2.21737	0.0519287	42.7003	<0.00001	***
Equity	0.238541	0.0154407	15.4489	<0.00001	***
Tax	−13.6509	0.540358	-25.2626	<0.00001	***
Industry	4.48064e+011	2.86749e+011	1.5626	0.11902	
Age	7.71937e+010	2.37288e+010	3.2532	0.00125	***
R-squared	0.951021				
Adjusted R-squared	0.950214				
Durbin-Watson	1.968077				
P-value(F)	5.8e-235				***

Table 4.32: Panel Diagnostic Tests for Model 6

Tests	**Statistic**	**p-value**
Joint Significance Of Differing Group	F(56, 310) = 5.52825	2.72488e-023
Breusch-Pagan Test Statistic	LM = 1.98685	= 0.158671
Hausman Test Statistic	H = 370.5	6.56237e-079

Equation 3: Internal Finance, Other Factors and Growth Measured by Turnover and Assets

This model 5 is also significant as the coefficients are jointly and separately significant. The model explains 99.3% of variation in turnover across time and the Durban Watson statistic is approximately. However, the rho indicates 56% of variation due to the differences across panels. Consequently there is a positive relationship between turnover and debt and its previous turnover. The model states that an increase in internal finance results in a decrease

Table 4.33: Model 5 – Without Size, Industry, Location and Age

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	−2.04701e+011	1.31079e+011	-1.5617	0.11959	
Internal Finance	−0.125045	0.00371585	-33.6517	<0.00001	***
Debt	0.190327	0.0111614	17.0522	<0.00001	***
Equity	−0.0087181	0.00496796	-1.7549	0.08046	*
Tax	−4.51005	0.106678	-42.2772	<0.00001	***
$Turnover_{t-1}$	0.240848	0.00887798	27.1287	<0.00001	***

LSDV R-squared	0.993033				
Within R-squared	0.985967				
Durbin-Watson	2.328491				
P-value(F)	1.0e-250				***
rho	−0.558940				

of 12.5%. The model further states that an increase in debt amount results in 19% increase in turnover. Additionally, an increase in equity results in a decrease of 0.08% in turnover and 4.51% in tax, while all the other factors are kept unchanged. Lastly, an increase in previous turnover results in an increase in turnover of 24%, with unchanged variables.

The model 6 explains 98% of the variation in assets across time. Furthermore, the model has no autocorrelation with a Durbin-Watson of 1.73. The model explains only 1.7% of variation resulted from differences across panels. It states that there is positive relationship between turnover and all the other factors except for taxes. The model further states that an increase in internal finance results in 74% increase in assets, keeping other variables unchanged. And an increase in equity amount results in 5% increase in assets. The model, as well, states that an increase in the debt amount results in 2.11 increase in assets. The model, lastly, states that an increase in tax amount results in 12.45 decrease in assets.

Table 4.34: Model 6 – without Location and Size

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	3.18089e+012	4.77966e+011	6.6551	<0.00001	***
Internal Finance	0.742493	0.0136869	54.2483	<0.00001	***
Debt	2.11286	0.0404329	52.2559	<0.00001	***
Equity	0.0512098	0.0160003	3.2006	0.00151	***
Tax	−12.4766	0.421205	-29.6213	<0.00001	***
LSDV R-squared	0.975330				
Within R-squared	0.953866				
Durbin-Watson	1.731291				
P-value(F)	1.6e-216				***
rho	−0.017163				

Omitted due to exact collinearity: Industry and Age

These results failed to confirms or deny the Gibrat's Law (1931) [the relationship between firm growth and firm size (Carpenter and Petersen, 2001)] as the size variable failed to provide any significance in the models above. Moreover; the location variable was omitted for the same reason together with industry and age variable for collinearity. These findings may be as a result of the sample containing: 67% of Gauteng firms; 28% firms from the financial industry; 23% from the industrial industry; 58% of firms have less than 50 employees; 30% have greater than 200 employees and 72% of firms are less than 25 years of age. Besides; other theories discussed in chapter 2 –section: 2.4.1 could not be verified.

Only three variables (debt, equity and taxes) were significant influencers of firm growth in this study. These results convey what other studies have shown. Studies on external finance and firm growth have found contradicting conclusions on the impact of external finance and firm performance. Equity for SMEs has been proven to be a facilitator of growth through increasing profits and employment (Lerner and Schoar, 2014). As such these contradicting results was unexpected. In addition, Segarra and Teruel (2009) noted that access to debt financing was increased because of a high equity percentage to total finance. This increases investment opportunities. Additionally, Loderer and Waelchli (2010) affirmed that listed firms to be better performers compared to non-listed firms. However; results on debt were not ambiguous. These results found debt financing yielded similar findings as the Fosu (2013) study, that: a significant positive outcome between firm performance and financial leverage. Also; the McPherson and Rous (n.d.) study found access to credit not a determinant of small firm growth. Compared to the Rogerson (2008) study which found that lack of credit deters firm growth.

Taxes are a limiting fact for African firm, particularly South African. This is similarly conveyed in this study. The model states that the higher the tax amount the less grow the company experiences. This illustrates the tax burden imposed by the South African tax

compliance requirement. Not only does the corporate tax itself reducing investment capital, "complex tax codes can course high compliance costs" (Johansson, Heady, Arnold, Brys and Vartia, 2009). Tax compliance requirements have been a stumbling block for South African SMEs (Abrie and Doussay, 2006). The procedure and requirements that firms have to be abided by influence whether or not a company pays their taxes, thus impacting the tax amount and firm growth.

4.4.4. Internal Finance and Other Factors

Similar Panel Tests were done on Models 7 which confirmed that FE models are suitable (as seen in below in tables: 4.35 – 4.38). The below FE model was found.

MODEL 7

Table 4.35: Model 7 –Internal Finance and Other Factors

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	5.74287e+012	5.51011e+012	1.0422	0.29799	
Debt	−2.90121	0.0665375	-43.6026	<0.00001	***
Equity	0.577837	0.0391632	14.7546	<0.00001	***
Tax	18.8624	1.41778	13.3042	<0.00001	***
Age	−1.57622e+011	7.6586e+010	-2.0581	0.04029	**
size	4.00587e+08	2.31295e+09	0.1732	0.86260	
Industry	−9.63149e+011	9.58554e+011	-1.0048	0.31567	
Location	9.31765e+011	1.37242e+012	0.6789	0.49762	
R-squared	0.873865				
Adjusted R-squared	0.871433				
Durbin-Watson	2.998572				
P-value(F)	6.2e-159				***

Table 4.36: Model 7 – Without Size, Industry and Location

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	2.85686e+012	2.79718e+012	1.0213	0.30777	
Debt	−2.91552	0.0652554	-44.6787	<0.00001	***
Equity	0.57271	0.0388305	14.7490	<0.00001	***
Tax	18.9748	1.41138	13.4442	<0.00001	***
Age	−1.23509e+011	7.02368e+010	-1.7585	0.07951	*
R-squared	0.873388				
Adjusted R-squared	0.872004				
Durbin-Watson	2.997225				
P-value(F)	9.1e-163				***

Table 4.37: Model 7 – Without Size, Industry and Location with Lagged Internal Finance

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	4.92152e+012	2.88728e+012	1.7046	0.08929	*
Debt	−3.76098	0.104188	-36.0980	<0.00001	***
Equity	0.603105	0.0399501	15.0965	<0.00001	***
Tax	26.5935	1.56086	17.0377	<0.00001	***
Age	−2.15342e+011	7.12493e+010	-3.0224	0.00272	***
Internal Finance$_{t-1}$	−0.30868	0.031942	-9.6637	<0.00001	***
R-squared	0.885982				
Adjusted R-squared	0.884131				
Durbin-Watson	2.246893				
P-value(F)	7.2e-143				***

Table 4.38: Panel Diagnostic Tests for Model 7– Without Size, Industry and Location with Lagged Internal Finance

Tests	**Statistic**	**p-value**
Joint Significance Of Differing Group	F(49, 260) = 10.1681	6.51028e-038
Breusch-Pagan Test Statistic	LM = 0.466575	= 0.494567
Hausman Test Statistic	H = 601.714	6.59429e-129

Equation 4: Internal Finance and Other Factors

Table 4.39: Model 7 – Log of Internal Finance and Log of Other Factors

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	−1.10144e+013	1.29338e+012	-8.5159	<0.00001	***
Debt	1.11616	0.0343019	32.5392	<0.00001	***
Equity	21.2814	1.02287	20.8055	<0.00001	***
Tax	−3.13391	0.0721016	-43.4651	<0.00001	***
InternalFinance$_{t-1}$	−0.500537	0.0220982	-22.6506	<0.00001	***
LSDV R-squared	0.960903				
Within R-squared	0.930384				
Durbin-Watson	1.611738				
P-value(F)	4.1e-155				***
rho	−0.134205				

Omitted due to exact collinearity: Age

Model 7 explains 96% of the variation in internal finance across time. And 13% of variation is due to differences across panels. The model states that there is a positive relationship with internal finance and debt, equity and a negative relationship with tax and previous internal

finance. While keeping other variables constant; an increase in the debt amount results in and increase of 1.12 in internal finance. In addition, an increase in equity results in a 21.3 in internal finance. Also, an increase in taxes results in a decrease of 3.1internal finance. And an increase in previous internal amount results in 50% decrease in internal finance.

Model 7 rejected the null hypothesis of there being no relationship between internal finance and the other factors. The model specified that the three factors are the same as the other factors of firm growth of the sampled firms. It was expected of external finance to be the other factors that positively influence internal finance. It was previously stated that "the paper's notion is that access to finance leads to firm growth. Firm growth leads to increased internal finance subsequently, when reinvested, leading to a continuous cycle of firm growth". Thus these outcomes argue the paper's sentiment. These factors give an insight into the underlying relationship between internal finance and firm growth as they influence both internal finance and South African firm growth. Once again, there is a positive influence of debt on internal finance. With more debt amount, the sampled firms seem to use the borrowed money for investment purposed thus fostering firm growth. Conversely, equity has the same impact as in model 6, where assets were used as a proxy for firm growth. The more equity a company has, the more internal finance they have. The sampled firms used their money from shares sold for investment purposed and fostering firm growth. Besides, tax expectedly has a significant influence on internal finance thus been part of the continuous cycle. Once more taxes have a negative impact, however on internal finance. As such the more taxes there are the less internal finance is for the sampled firms as such deterring firm growth.

4.5. Conclusion

Table 4.40 represents a summary of the hypothesis and their outcome, see Appendix C. The entire null hypotheses were all rejected. This study found a significant relationship between

firm growth and internal finance. However, they failed to either agree or deny conclude on the Carpenter and Peterson (2001) and Guariglia et al. (2008) studies. The results have confirmed that there are different types of internal finance that impact firm growth. But, only two have a significant relationship: retained earnings and fixed assets. In addition; tax, debt and equity were found to have a significant influence on firm growth. And these three factors were found to be the underlying factors of firm growth and internal finance. These factors were explored further in the next section of the paper.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1. Summary Conclusion

5.1.1. Summary of the Aims and Objectives

The aim of the study was to investigate whether internal finance has an impact on South African SME growth. As well as, to explore the different types of internal finance available for South African SMEs and their influence of the have on firm growth. These formed the first two objectives. The next two were to fully understand the relationship between internal finance and firm growth. As such they focused on the other factors of firm growth and, further, their bearing on internal finance.

5.1.2. Summary of the Hypothesis Tested

The hypotheses tested were derived from the objectives. The main two hypotheses focused on the two research questions. The asked the question whether there is a relationship between internal finance or internal finance types and firm growth. The last two focused on the other factors of firm growth and their impact on internal finance. They investigated whether there is a relationship between internal finance or firm growth and other factors.

5.1.3. Summary of the Empirical Findings

The entire hypotheses tested were rejected. The study found ambiguous results on the first research question. The study further recognized retained earnings and fixed assets to be the two types of internal finance that effect the sampled firm growth. They had a negative influence on firm growth. Furthermore, the study established equity, debt, and taxes to have a significant impact on firm growth. Debt positively impacted both firm growth and internal finance; while taxes had a negative impact. Equity had an ambiguous influence on firm growth and a positive effect on internal finance. These three factors are proposed to be the

underlying factors of firm growth and internal finance. A negative relationship between tax and internal finance was found while a positive relationship between external finance and internal finance was found. In answering the two main questions asked, the following points are given:

- There is an ambiguous relationship between internal finance and firm growth was found in this study.
- There are a number of internal finance types available for the sampled firms. However, three were investigated. And a significant negative relationship between the two types of internal finance and firm growth was found.

And answering the remaining two the questions; following points are given:

- The other sources of South African SMEs' firm growth are external finance and taxes. A positive relationship between debt and internal finance was found. And a negative relationship between taxes and internal finance. However, an ambiguous relationship was found between internal finance and equity.
- External finance and taxes are the other factors that impact the SMEs' internal finance. A positive relationship was found between internal finance and external finance. And a negative relationship with taxes. As such there are the underlying link between firm growth and internal finance.

5.2. Recommendations

Even though there were ambiguous results between internal finance and firm growth, there are lessons from this study. SMEs do not have enough support from the government (http://www3.weforum.org). Moreover, they are not aware of the governments' efforts to support them (Olawale and Garwe, 2010). Normal (Non-listed) SMEs do not have access to external finance and are constrained to using internal finance - such as personal funds,

retained earnings - compared to listed SMEs (Makhabeni, 2015). The fact that they have access to external finance indicates that they are well established. And they tend to be high growth companies (http://fspinvest.co.za). Additionally; they have the opportunity to grow and graduate to the main board. Nonetheless; this study is useful in that it indicated a link between external finance and internal finance with firm growth. Therefore; this study argues that enhancing debt and equity and limiting tax expense can minimise the financial burden SMEs experience. As such the following is recommended; particularly for boosting SMMEs growth.

Access to finance plays an important role in starting and growing the business. New SMEs without the access to capital may find it difficult to obtain the needed technology. Technology aids in maximising business opportunities, developing multi-prolonged business strategies and minimise the cost of production (Olawale and Garwe, 2010). Besides, the choice between debt and equity plays a vital role on the firms' financial performance (Umar, Tanveer, Aslam, Sajid, 2012). For many developing countries the commercial bank is the main source of external finance. When it comes to obtaining debt the following factors are considered for approval: managerial competencies, business information, networking, locations, crime, business size and incorporation (Fatoki and Odeyemi, 2010). The issue with debt financing is not the availability of it but rather factors such as the cost of debt (http://ncr.org.za). Thus it is vital for commercial banks to develop sustainable and viable means of providing credit to SMEs. Ezeoha and Botha (2012) noted that by investments in assets that are suitable to external creditors as collateral significantly influences the firm's access to the debt markets. As a result, banks should consider offering finance to businesses with little collateral (Rogerson, 2008). He argued that loan evaluation discriminates against SMMEs instead of focusing on their potential. Further, Fatoki, and Van Aardt Smit (2011) argued that interest rate should be lowered for debt to be used positively by new SMEs. The

World Bank's "Ease of Getting Credit" ranked South Africa at a moderately low index of 59th out of 189 countries (www.doingbusiness.org). This illustrates that more needs to be done to foster credit lending to small business as it has been proven to boast firm growth. Additionally; it is further recommended that the South African government should invest more in or partner with Micro Financial Industry to foster credit to SMMEs.

Compared to other developing countries, South Africa has a high number of 'high net-worth individuals' to act as business angles to fill the supply of finance gap. The reported numbers of investors invest in small companies (Falkena et al., n.d.). Together with venture capital are the kinds of equity available for SMEs. Venture capital is money provided to emerging or growing companies in exchange for equity (http://ncr.org.za). Business angles are equity investors who invest in unlisted firms and sit on their board (Falkena et al., n.d.) They provide benefits from providing their expertise to financing (Falkena et al., n.d.; Kerr, Lerner and Schoar, 2014). Venture capital invests in the middle of the growth stage (Fatoki and Odeyemi, 2010). The South African Venture Capital Association states that there are 65 venture capitalists available in South Africa. This is a total of R29 billion with an average investment of R15.4 million with R1.1 billion (3.8% of the fund) focusing on SMEs. As SMEs have limited access to equity financing; it is recommended that awareness of the AltX section of the JSE should be promoted. Doing so taps into the financial resources similar far much greater with the potential growth to the main board.

The cost of obtaining registration licences and paying taxes impacts SME growth (Olawale and Garwe, 2010). Companies are less compliant the more they tend to operate in the informal sector when the tax paying procedure is complicated (http://documents.worldbank.org). Governments are wary of the burden their tax system has upon small businesses as they are associated with entrepreneurship, job creation and economic growth (Hasseldine et al., 2012). As noted previously, tax compliance requirements

is stumbling block for SMEs as they incur both internal and external costs when trying to comply with their tax obligations, as a result hinders their growth. Small business incurs internal and external costs when trying to comply with their tax obligations. A heavier burden on smaller businesses is created as on average tax practitioners charge approximately R7 000 per month to ensure that their small business clients meet SARS requirements[19] (Smulders and Stiglingh, 2008). This is amount is most probably higher as a result of inflationary pressures. Additionally, Lubbe and Nienaber (2012) proposed that small businesses often rely on tax practitioners as they lack the necessary tax skilled staff. Venter and de Clercq (2007) established that small business owners resorted to outsourcing tax expertise from tax practitioners as a result of the constant change in legislation and the amount of time it takes to keep abreast with these changes. Their study identified that as the business grows the more equip they become in meeting the tax requirements. South Africa was placed the 20th for "Ease of Paying Taxes", compared to 13th for Mauritius. The total tax rate is 28.8% of profit, which includes 31.3% for the profit tax, 28.4% over 200 hours per year and comprises of 7 procedures (www.doingbusiness.org). Johansson et al. (2009) argued that corporate tax is the most harmful as it discourages the activities that foster growth. Currently the requirement to pay taxes does not incentivise small businesses to formalise and yields no growth for South African SMEs. As such this paper puts forth what Abrie and Doussay (2006) have argued; that the government should greatly consider reducing the requirements that must be compliance and the number of taxes. The South African government is recommended to design an SME tax system that minimizes compliance cost and maximizes accessibility (Stern and Loeprick, 2007). This in turn would incentivize formalization as such lead to more external funding, such as access to the AltX JSE; venture capital, business angles and bank finance.

[19] Consists of the following four key taxes: income tax, employees'' tax, provincial tax and value added tax.

5.3. Conclusion

It is known that entrepreneurship has great advantages on the economy as a whole. In South Africa, SMEs constitute majority of business in the formal sector. Yet, many firms struggle and some diminish because of finance. Many do not have access to external finance as such this study proposed internal finance to be an avenue that can be explored. This paper proposed that access to finance leads to firm growth. Firm growth leads to increased internal finance subsequently, when reinvested, leading to a continuous cycle of firm growth. Only two studies were found on internal finance and firm growth; a study by Carpenter and Petersen (2001) and Guariglia, Liu and Song (2008). Neither of them focused on small to medium businesses or on African firms. Intrinsically this study asked whether internal finance has a substantial outcome on South African firm growth. The study further analysed the influence of the different types of internal finance have of firm growth. Moreover, the other factor where investigated as they were expected to undeniably have an impact on firm growth. The study employed a sample of SMEs registered on the AltX section of the JSE. The sample was used as the group of firms have access to the different types of internal finance required in this study. The results illustrated that internal finance does have an impact on South African firm growth. But; the study could not answer the question formulated by Guariglia et al. (2008): Does the availability of internal finance constrain firm growth? Or does it foster it? The different types of internal finance had a negative influence on firm growth. In addition; debt, equity and tax were found to be the other factors of firm growth and were further found to be the other factors of internal finance. Even though this study does not represent a true South African SMEs sample; it is the first step towards understanding their growth through internal finance. Understanding the impact of internal finance on firm growth and factors such as debt, equity and tax have on both growth and internal finance

would allow government to designed legislation and programmes that truly promote SME growth.

5.4. Recommendations for Future Research

Several research gaps have been identified as such the following are recommended for future research:

- Sampling was a major limitation. It is therefore recommended that this study to be done on a much larger sample of SMEs including micro businesses with access to internal finance across Africa.
- More studies on internal finance and firm growth globally need to be conducted as this topic lacked research.
- More studies on internal finance for South African SMEs and global SMEs should be conducted.
- Studies on the impact of the other factors such as equity, location, firm age, firm size, industry and education of firms' top level management on firm growth in South Africa is recommended. This is because most research on South African SMEs are on credit financing.

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APPENDIX B: STRUCTURE OF THE UNBALANCED DATA

Table 4.2: Structure of the Unbalanced Data for the Observations

Observation	Number of observations	Percentage	Cumulative Percentage	Number of observation per firm	Number of observation	Percentage	Cumulative Percentage
1	8	2.150538	2.150538	**30**	10	2.688172	54.56989
2	1	0.268817	2.419355	**31**	8	2.150538	56.72043
3	5	1.344086	3.763441	**32**	4	1.075269	57.7957
4	10	2.688172	6.451613	**33**	1	0.268817	58.06452
5	6	1.612903	8.064516	**34**	10	2.688172	60.75269
6	10	2.688172	10.75269	**35**	3	0.806452	61.55914
7	8	2.150538	12.90323	**36**	10	2.688172	64.24731
8	7	1.88172	14.78495	**37**	1	0.268817	64.51613
9	5	1.344086	16.12903	**38**	9	2.419355	66.93548
10	1	0.268817	16.39785	**39**	10	2.688172	69.62366
11	8	2.150538	18.54839	**40**	5	1.344086	70.96774
12	1	0.268817	18.8172	**41**	9	2.419355	73.3871
13	10	2.688172	21.50538	**42**	4	1.075269	74.46237
14	7	1.88172	23.3871	**43**	8	2.150538	76.6129
15	6	1.612903	25	**44**	8	2.150538	78.76344
16	5	1.344086	26.34409	**45**	1	0.268817	79.03226
17	8	2.150538	28.49462	**46**	10	2.688172	81.72043
18	8	2.150538	30.64516	**47**	1	0.268817	81.98925
19	7	1.88172	32.52688	**48**	10	2.688172	84.67742
20	10	2.688172	35.21505	**49**	8	2.150538	86.82796
21	9	2.419355	37.63441	**50**	4	1.075269	87.90323
22	8	2.150538	39.78495	**51**	6	1.612903	89.51613
23	6	1.612903	41.39785	**52**	5	1.344086	90.86022
24	2	0.537634	41.93548	**53**	2	0.537634	91.39785
25	3	0.806452	42.74194	**54**	8	2.150538	93.54839
26	9	2.419355	45.16129	**55**	10	2.688172	96.23656
27	8	2.150538	47.31183	**56**	5	1.344086	97.58065
28	8	2.150538	49.46237	**57**	9	2.419355	100
29	9	2.419355	51.88172				
Total					**372**	**100**	

Table 4.3: Structure of the Unbalanced Data for the Time Series Observations

Year	Number Of Observations	Percentage	Cumulative Percentage
2015	16	4.494382	4.494382
2014	39	10.95506	15.44944
2013	39	10.95506	26.40449
2012	41	11.51685	37.92135
2011	43	12.07865	50
2010	44	12.35955	62.35955
2009	42	11.79775	74.1573
2008	39	10.95506	85.11236
2007	31	8.707865	93.82022
2006	12	3.370787	97.19101
2005	8	2.247191	99.4382
2004	1	0.280899	99.7191
2003	1	0.280899	100
Total		**100**	

APPENDIX C: TABLES AND GRAPHS

Table 1.2: JSE Listing Requirements of the AltX Sector Compared to the Main Board

Listing Requirements	Main Board	AltX
Share capital	R25 million	R2 million
Profit history	3 years	None
Pre-tax profit	R8m	N/A
Shareholder spread	20%	10%
Number of shareholders	300	100
Sponsor / DA	Sponsor	Designated Advisor
Publication in the press: short form announcement in one newspaper	Compulsory	Voluntary
Number of transactions	2 (threshold 25%)	2 (threshold 50%)
Annual listing fee	0.04% of average market capitalisation with a minimum of R37 335,59 (incl VAT) and a maximum of R189 700.33 (incl VAT)	R30 262.20 (incl. VAT) maximum

Source: www.jse.co.za

Table 1.3: The Five Stages of Small Business Growth

STAGES	
Existence	concerned with garnering customers and delivering the product or service contracted for
Survival	firms have demonstrated that they are workable business entities, but the key question becomes whether there is enough money for the firm to break even and stay in business
Success	here the decision facing owners is whether to exploit the company's accomplishments and expand or keep the company stable and profitable, providing a base for alternative owner activities
Take-Off	concerned with how to make the firm grow rapidly and how to finance this growth
Resource Maturity	companies have the advantages of size, financial resources, and managerial talent and will be a formidable force in the market if they retain their entrepreneurial spirit

Churchill and Lewis (1983)

Table 4.40: Hypothesis and Their Outcome

Hypothesis	**Outcome**
1. Relationship between internal finance and firm growth H_0: There is no relationship between internal finance and firm growth H_1: There is a positive relationship between internal finance and firm growth	Reject H_0
2. Relationship between the types of internal finance and firm growth H_0: Different types of internal finance do not impact firm growth H_1: Different types of internal finance positively impact firm growth	Reject H_0
3. Relationship between firm growth and other factors H_0: There is a relationship between firm growth and the other factors of growth H_1: There is no relationship between firm growth and the other factors of growth	Reject H_0
4. Relationship between internal finance and other factors H_0: There is a relationship between internal finance and the other factors of growth H_1: There is no relationship between internal finance and the other factors of growth	Reject H_0